

**COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Blue Ridge Regional Office**

STATEMENT OF LEGAL AND FACTUAL BASIS

Virginia Marble Manufacturers, Inc. – Plant 1
(Lunenburg County) Kenbridge, Virginia
Permit No. BRRO-30743

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Virginia Marble Manufacturers, Inc. has applied for a Title V Operating Permit for its 1201 Fifth Avenue, Kenbridge facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____
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Date:

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Date:

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FACILITY INFORMATION

Permittee

Virginia Marble Manufacturers, Inc.
P. O. Box 766
Kenbridge, VA 23944

Facility

Virginia Marble Manufacturers, Inc. - Plant 1
1201 Fifth Avenue
Kenbridge, Virginia

County-Plant Identification Number: 51- 111-00016

SOURCE DESCRIPTION

NAICS Code: 326191, Plastics Plumbing Fixture Manufacturing

Virginia Marble Manufacturers, Inc. (VMM) manufactures cultured marble products in Kenbridge, Virginia (Lunenburg County). The plant is separated into three departments: custom, standard, and tub. Raw materials are stored in central locations for collection by each department. VMM has the potential to operate twenty-four (24) hours per day, seven (7) days per week, and fifty-two (52) weeks per year. The annual raw material throughput limitations are based on producing 8,057.5 tons of cultured marble per year.

The facility is a Title V major source of styrene (a hazardous air pollutant (HAP)) hence subject to 40 CFR 63 Subpart WWWW – “National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production”. As an existing facility, compliance to this subpart became effective April 21, 2006.

The facility is a Title V major source of styrene. This source is located in an attainment area for all pollutants, and is a PSD minor source. The facility is currently permitted under an October 24, 1986, and amended on April 29, 1987, October 1, 1987, March 15, 1994, July 15, 1996, February 20, 1998, July 23, 1998, November 23, 1998, and April 1, 2003 minor new source review permit.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time. The most recent full compliance inspection was performed on December 18, 2012.

Some records were not available. The facility was issued a Warning Letter to correct the recordkeeping. The facility was determined to be in compliance on February 14, 2013

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

The marble manufacturing process equipment described below is regulated according to the minor NSR permit dated April 1, 2003:

Emission Units: Casting Lines (1C, 2C and 3C)

Stack ID: V1, V2, V12 and V13

Description: Casting lines with a combine rated capacity of 4,029 lb/hr of finished product. Material is manually transferred to the mixing and pouring areas; marble is poured into large electric mixers and combined with resin and other materials; the mixture is then poured into smaller mixing pots to finalize before being poured into various size molds. Casting Line 3C has an autocaster unit. This process emits VOCs and HAP emissions that are uncontrolled.

Emission Units: Spray and Brush Gel Coating Lines (SB1 – SB4, SB6 and SB7)

Stack ID: V1, V2, V12, V13, V19 and V20

Pollution Control Device ID: SB1-SB4, SB6, and SB7

Description: Production molds are cleaned then sprayed with Gelcoat. A catalyst is also sprayed to reduce the drying time. Fumes from the spray booth operations are passed through filters before exiting to the atmosphere. Molds are manually moved using roller conveyors under dryers and transferred to the mix and pouring area. This process is equipped with an exhaust. VOC and HAP emissions are uncontrolled. Particulate emissions from fumes (PM and PM10) are controlled by double fiberglass filters.

Emission Units: Sanding and Grinding Booths (1GS - 4GS)

Stack ID: V15 - V18

Pollution Control Device ID: 1GS - 4GS

Description: Cured castings are transferred to the Grinding Station where hand-held grinders smooth the rough surfaces. This process emits particulates (PM and PM10). Dust generated during sanding is controlled by fabric filter.

Emission Units: Mold Making and Repairing (SB5 and mold making/repairing area)

Stack ID: V14

Pollution Control Device ID: V14

Description: Production molds are repaired in this area. Molds are sprayed in a spray booth area. Spray fumes pass through a replaceable filter before exhausting to the atmosphere. Particulate emissions (PM and PM10) are controlled by fabric filter. VOC and HAP emissions are uncontrolled.

Emission Units: Polyester Resin Storage Tanks (T1 and T2)

Stack ID: None

Pollution Control Device ID: N/A

Description: Two 4,400 gallon tanks for polyester resin storage permanently affixed inside the facility. VOC and HAP emissions are uncontrolled.

Emission Units: Mold Cleanup (MC)

Stack ID: None

Pollution Control Device ID: N/A

Description: Mixing pots and pouring tools are cleaned with cleaning agents such as acetone, Super Flush®, or Marble Wash®). None of the cleaning agents contain a regulated HAP. The agent is gravity fed into drums from tanks and transported into the plant as needed. The mixing and pouring areas have washing tanks equipped with covers, and fume exhaust system. Fumes are exhausted outside the building, and are not controlled.

EMISSIONS INVENTORY

A copy of the 2012 annual emission update is attached. Emissions are summarized in the following tables.

2012 Actual Emissions

	2012 Criteria Pollutant Emission in Tons/Year				
Emission Unit	VOC	CO	SO ₂	PM ₁₀	NO _x
Marble Manufacturing	23.0			1.9	
Total	23.0			1.9	

2012 Facility Hazardous Air Pollutant Emissions

Pollutant	2012 Hazardous Air Pollutant Emission in Tons/Yr
Styrene	19.7
Methylmethacrylate	3.1

EMISSION UNIT APPLICABLE REQUIREMENTS - Marble Manufacturing Equipment

Citations

The following citations denote the underlying authorities to implement the specific conditions in the NSR permit dated April 1, 2003:

9 VAC 5-20-160, 9 VAC 5-20-180, 9 VAC 5-50-20, 9 VAC 5-50-30, 9 VAC 5-50-50, 9 VAC 5-50-180, 9 VAC 5-50-260, 9 VAC 5-50-390, 9 VAC 5-80-1100, 9 VAC 5-80-1180, 9 VAC 5-80-1190, 9 VAC 5-80-1210, 9 VAC 5-80-1240, 9 VAC 5-170-60, and 9 VAC 5-170-130.

Marble Manufacturing Process

(1C-3C; 1GS-4GS; SB1-SB7; T1, T2, and MC)

Limitations

The casting process (1C-3C) emits VOCs and styrene. Pollutant emission rates are related to throughput usage rates, calculated on a monthly basis. VOC and styrene emissions from the casting process, spray/brush gel coating (SB1- SB4, SB6, and SB7), mold making/repairing and (SB-5) are uncontrolled.

Fabric filters are employed to control particulate emissions from sanding/grinding (1GS-4GS) and gel coat spray/brush operations. A completely enclosed transfer system is used to prevent fugitive emissions during dust (marble, sanding/grinding) conveying operations. The gel coating booths use replaceable filters.

There are no limitations specific to the storage tanks (T1, T2).

Monitoring

The NSR permit requires a gauge to monitor fabric filter differential pressure. Daily visible emissions (VE) observations are documented for opacity and provide indication that the associated particulate filters are working properly. This daily monitoring method is considered sufficient periodic monitoring for PM and PM₁₀.

Monthly calculations of VOC and styrene emissions from casting resin and spray/brush operations demonstrate compliance with the permit limits. VOC emissions are calculated using VOC content (MSDS) and approved factors from the Composite Fabricators Association¹.

Compliance Assurance Monitoring (CAM) analysis of emission units with control devices:

At the facility, particulate matter (PM₁₀) is the only regulated pollutant that necessitates a CAM review since PM₁₀emissions from gel coat spray/brush and sanding/grinding operations have an emission limit and use add-on control equipment for PM₁₀.

¹CFA factors published July 23, 2001.

Gel coat spray/brush (SB1 – SB4, SB6, SB7) – PM₁₀ Emissions

Spray booths SB1-SB4 use brush method for gel coating and particulate emissions are considered negligible. Since 2003, the facility has added granite to gel coat resin for spraying operations in SB-6 (maximum spraying capacity = 112 lb/hr). The maximum solid content for granite is 58.33%. As applied, the granite mix has a solid content of 53.54% for SB-6. SB-7 uses a white gel coat with a maximum solid content of 64.20% (spraying capacity = 28 lb/hr). The current NSR permit includes a throughput limit of 249.8 ton/yr for gel coat resin (all booths). Given a transfer efficiency of 50% and a combined gel coat solid content of 55% (according to each spray booth's spraying capacity and solid content), a worst case potential to emit (PTE) for PM₁₀ is determined to be:

$$249.8 \frac{\text{ton}}{\text{yr}} \text{ gel coat resin} \times .642 \text{ gel coat solid content} \times 0.50 = 80.2 \text{ ton/yr solids, as PM}_{10}.$$

Since total PTE for PM₁₀ is less than 100 ton/yr; PTE for each booth is less than major source thresholds. CAM for gel coat spraying operations is not required.

Sanding/Grinding (1GS - 4GS) – PM₁₀ Emissions

The facility consulted with the Nebraska DEQ agency for estimating emissions generated from trimming operations for composite resin open molding operations². While CAM is a function of individual units, particulate emissions from sanding/grinding operations were based on total waste generated from all four booths. The agency's assessment assumes 1% of the material used (resin and gel coating) will be emitted from this abrasion operation. Based on this worst case scenario, the pre-control PM₁₀ emission rate is determined to be 75 ton/yr.

Since this source is not major for PM₁₀ emissions in both operations; the daily visual observation of the dust collection system(s) exhaust stack is considered sufficient periodic monitoring to demonstrate compliance to the PM₁₀ emission limit.

Recordkeeping

Records are maintained to demonstrate compliance with emission data, operating parameters, periodic monitoring activities, and any testing that is performed.

Testing

The permit states that the facility shall be constructed to allow emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. Test ports shall be provided when requested at the appropriate locations. The permit does not require source tests (stack tests)

²Scott Bridgforth, Virginia Marble Manufacturers, Inc., to Anita Walthall, VA DEQ, 8 August 2008.

on casting, spray/brush gel coat booths and sanding, mold making/repairing, and grinding booth dust collection system(s). The Department and EPA have the authority to require testing, but stack testing is not required for this facility.

Reporting

Reporting not associated with the applicable MACT requirements is required per the General Conditions stated below.

40CFR 63 MACT WWWW - Reinforced Plastic Composites Requirements

At the time of this renewal, the affected sources at VMM subject to 40 CFR 63 Subpart WWWW are all or parts of the facility engaged in open molding, polymer casting, mixing, cleaning of equipment used in reinforced plastic composites manufacture, HAP-containing materials storage, and repair operations on parts manufactured at the plant. According to the subpart, VMM is an existing source since construction commenced prior to August 2, 2001.

Unless otherwise indicated, references made to Subpart WWWW are referred to as “this subpart”

For open molding operations, organic HAP emissions factors should be used to determine compliance with the organic HAP emissions limits in Subpart WWWW. The subpart provides equations (Table 1) for calculating site-specific organic HAP emission rates; otherwise a HAP emissions test should be conducted. Exceptions for using HAP emission factors for resin or gel coat applications are provided in §63.5798

Limitations

- For affected sources, the facility must meet the organic HAP emissions limits in Table 3 and work practice standards in Table 4 (§63.5805 (b)), except as noted in the options section of §63.5810.
- Repair operations must meet the organic HAP emissions limits in Table 3 and work practice standards in Table 4 of Subpart WWWW (§63.5805 (g)), except as noted in the options section provided in §63.5810.
- The facility must be in compliance with the work practice standards in Table 4 and the organic HAP emission limits in Table 3 as applicable, without the use of add-on controls (§63.5835).
- The facility must operate and maintain the affected source(s) and monitoring equipment according to the General Provisions in Subpart A (§63.5835, §63.5925).

Monitoring (continuous compliance)

- Except for monitoring malfunctions, associated repairs, QA, or QC activities, the facility

must monitor in “continuous operation” at all times the affected source is operating (§63.5895 (b)(1)).

- The necessary part for routine repairs of monitoring equipment must be maintained at all times (§63.5895 (b)(3)).
- Compliance with organic HAP emissions limits is demonstrated by maintaining an organic HAP emissions factor value \leq the appropriate value identified by Table 3 and Table 4 as applicable according to this subpart (§63.5900).

Recordkeeping

- The facility is required to keep records of notification, reporting, startup/shutdown/malfunction (SSM), performance testing, certifications, calculations, and description of rationales used for emission factors (§63.5915).
- The facility must collect and maintain records of resin and gel coat use, organic HAP content, and operation of where the resin is used (§63.5895 (c), (d)).
- Records should be readily accessible, suitable for inspection, and kept for 5 years following the date of each occurrence (minimum of 2 years onsite) (§63.5920).

Testing

- Where applicable, the facility is required to conduct performance tests, performance evaluations, design evaluations, capture efficiency testing, and other initial compliance demonstrations by the compliance date specified in Table 2 (§63.5840-§63.5850).
- By April 21, 2006 the facility (existing) was required to demonstrate initial compliance with each organic HAP emissions standard (as applicable) using the procedures shown in Tables 8 and 9 of this subpart (§63.5860).

Reporting

- The facility is required to submit all notifications of this subpart according to the General Provisions in subpart A (§63.5905).
- The facility is required to submit reports according to the schedule in Table 14 as applicable (§63.5910).

Streamlined Requirements

None.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting

semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

34. - 39. Permit Expiration

These conditions refer to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-09”.

45. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

63. – 66. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Conditions 45 **Failure/Malfunction Reporting**, 64 **Malfunction as an Affirmative Defense**, 65 **Malfunction as an Affirmative Defense**, and 66 **Malfunction as an Affirmative Defense**. For further explanation see the comments on General Condition 45 **Failure/Malfunction Reporting**.

70. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

STATE ONLY APPLICABLE REQUIREMENTS

There are no state only requirements.

FUTURE APPLICABLE REQUIREMENTS

None at this time.

Green House Gas

VMM emits less than 75,000 tons of GHG per year and reporting requirements do not apply. There are no applicable GHG permitting requirements. The facility has only two 1.2 MMBtu/hr hot water heaters.

INAPPLICABLE REQUIREMENTS

The 1.2 MMBtu/hr (#2 fuel oil fire) Burnham HW hot water heaters (located at a major source of HAPS) are not subject to MACT Subpart DDDDD—National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters since each has a burner capacity of less than 1.6 MMBtu/hr (40CFR63.7575 definition of hot water heater).

COMPLIANCE PLAN

None

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation ¹ (9 VAC_)	Pollutants Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
HW1, HW2	Burnham HW heaters	5-80-720B	NO _x , SO ₂ ,	

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the *Kenbridge-Victoria Dispatch* from January 22, 2014 to February 21, 2014.